

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of:	Stein et al.	Docket No.:	2006P26235 US
Application No.:	10/813,587	Examiner:	TURK
Filed:	3/31/2004	Art Unit:	1797
Customer No.:	28524	Confirmation No.:	4314

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For: Controller for automated immunoassay system

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Honorable Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Sir:

This is an appeal from the final rejection of claims 1 – 20, mailed April 16, 2008. A Notice of Appeal was filed on July 16, 2008. The fee of \$510.00 for filing a brief set forth in 37 C.F.R. § 41.20(b)(2) is paid by credit card. Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account 14.1437. Please credit any excess fees to such account.

**REAL PARTY IN INTEREST:**

The real party in interest is Siemens Healthcare Diagnostics Inc. of Tarrytown, NY.

**RELATED APPEALS AND INTERFERENCES:**

To the best of the undersigned's knowledge, there are no related interferences or judicial proceedings, which would have an effect or be affected by the decision in this appeal.

**STATUS OF CLAIMS:**

- Claims 1 – 20 are pending in the application. Claims 1 and 13 constitute the independent claims in the application.
- Claims 1 – 20 are rejected.
- Claims 1 – 20 are being appealed.
- No claims are allowed
- No claims are withdrawn. (Claims 13 – 20 were rejoined in the Office action of April 16, 2008).

**STATUS OF AMENDMENTS:**

No amendment to the claims or to the specification was filed subsequent to the final rejection mailed April 16, 2008.

**SUMMARY OF CLAIMED SUBJECT MATTER:**

Claim 1 is directed to an immunoassay analyzer, comprising:  
means for loading one or more samples into one or more test vessels;<sup>1</sup>  
means for identifying tests to be performed on each of said one or more samples,  
each of said tests to be performed in a test vessel;<sup>2</sup>

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<sup>1</sup> Specification page 15, lines 20 – 21, page 21, lines 20 – 23, and Figure 10.

<sup>2</sup> Specification page 7, lines 9 – 15, page 3, line 30 – page 4, line 1.

a plurality of resources, each of said plurality of resources for performing a specified function on a test vessel, each of said tests identified by said means for identifying requiring one or more of said plurality of resources;<sup>3</sup>

means for moving a plurality of test vessels to and from one or more resources of said plurality of resources;<sup>4</sup> and

a computer controller<sup>5</sup> which

(i) tracks a location of each test vessel;<sup>6</sup>

(ii) controls movement of said test vessels by said means for moving,<sup>7</sup> and

(iii) determines a path for each test vessel between each resource based on the test identified for said test vessel by said means for identifying, and the tests identified and location for all other test vessels of said plurality of test vessels, and each path requiring one or more of said plurality of resources and movement between said plurality of resources by said means for moving.<sup>8</sup>

Claims 2 – 12 depend from claim 1.

Claim 2 is directed to the immunoassay analyzer of claim 1 wherein said controller determines an optimized launch of test sequence for each sample based on any samples currently under test and any samples yet to be tested, said launch of test sequence controlling a time and order for tests to be launched.<sup>9</sup>

Claim 3 is directed to the immunoassay analyzer of claim 2 further comprising a means for setting one or more resource saturation levels, and wherein said computer controller considers said one or more resource saturation levels in the determination of said launch of test sequence.<sup>10</sup>

Claim 4 is directed to the immunoassay analyzer of claim 3 further comprising means for modifying said one or more resource saturation levels.<sup>11</sup>

Claim 5 is directed to the immunoassay analyzer of claim 4 wherein said means

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<sup>3</sup> Specification page 6, lines 12 – 25.

<sup>4</sup> Specification page 10, lines 11 – 15.

<sup>5</sup> Specification page 7, lines 24 – 31.

<sup>6</sup> Specification page 7, lines 24 – 31.

<sup>7</sup> Specification page 7, lines 24 – 31.

<sup>8</sup> Specification page 17, lines 7 – 22.

<sup>9</sup> Specification page 17, lines 7 – 22, and page 3, line 28 – page 4, line 6.

<sup>10</sup> Specification page 3, line 28 – page 4, line 6.

<sup>11</sup> Specification page 4, lines 4 – 6.

for modifying said one or more resource saturation levels uses historical information of tests performed previously in the immunoassay analyzer.<sup>12</sup>

Claim 6 is directed to the immunoassay analyzer of claim 1 wherein said path determined by said computer controller is determined each time a new test is to be performed on said one or more samples.<sup>13</sup>

Claim 7 is directed to the immunoassay analyzer of claim 1 wherein said path determined by said computer controller considers tests in one or more test vessels which are to be given priority over tests identified for all other test vessels.<sup>14</sup>

Claim 8 is directed to the immunoassay analyzer of claim 3 wherein said path determined by said computer controller is determined each time a new test is to be performed on said one or more samples.<sup>15</sup>

Claim 9 is directed to the immunoassay analyzer of claim 1 wherein said path determined by said computer controller reduces a total time period to perform each of the tests of each of said plurality of test vessels relative to a time period required for performing each test sequentially.<sup>16</sup>

Claim 10 is directed to the immunoassay analyzer of claim 1 wherein said computer controller resolves one or more conflicts in resource allocation by selecting a group of next tests and shifting said group of next tests at least one test cycle until said one or more conflicts is resolved.<sup>17</sup>

Claim 11 is directed to the immunoassay analyzer of claim 1 wherein said computer controller manages allocation of said one or more resources to balance a workload across a set of duplicate resources of said one or more resources.<sup>18</sup>

Claim 12 is directed to the immunoassay analyzer of claim 11 wherein said set of duplicate resources includes duplicate wash stations.<sup>19</sup>

Claim 13 relates to an automated method for performing immunoassays in an automated immunoassay analyzer. The method of claim 13 comprising the steps of:

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<sup>12</sup> Specification page 4, lines 4 – 6.

<sup>13</sup> Specification page 9, lines 4 – 13.

<sup>14</sup> Specification page 15, line 15 – page 16, line 18.

<sup>15</sup> Specification page 9, lines 4 – 13.

<sup>16</sup> Specification page 5, lines 10 – 29.

<sup>17</sup> Specification page 20, line 18 – page 21, line 3.

<sup>18</sup> Specification page 18, lines 11 – 15.

<sup>19</sup> Specification page 18, lines 11 – 15.

loading one or more samples;<sup>20</sup>  
identifying tests to be performed on each of said one or more samples, each of said tests to be performed in a test vessel;<sup>21</sup>  
using a computer controller<sup>22</sup> to control movement of a plurality of test vessels to and from one or more resources of a plurality of resources, each of said plurality of resources for performing a specified function on a test vessel, each of said tests identified by said means for identifying requiring one or more of said plurality of resources;<sup>23</sup>  
using a computer controller to track a location of each test vessel;<sup>24</sup>  
using a computer controller to determine a path for each test vessel between each resource based on the test identified for said test vessel by said means for identifying, said location of each test vessel, and the tests identified for all other test vessels of said plurality of test vessels, and each path requiring one more of said plurality of resources and movement between said plurality of resources;<sup>25</sup> and  
moving each of said plurality of test vessels along its respective path determined in said using a computer controller to determine step.<sup>26</sup>

Claims 14 – 20 depend from claim 13.

Claim 14 is directed to the method of performing immunoassays as recited in claim 13 further comprising the step of using a computer controller to determine a launch of test sequence for each test based on samples under tests and samples to be tested, said launch test sequence controlling a time and order of tests to be launched.<sup>27</sup>

Claim 15 is directed to the method of performing immunoassays as recited in claim 13 further comprising the step of determining one or more resource saturation levels for said launch of test sequence.<sup>28</sup>

Claim 16 is directed to the method of performing immunoassays as recited in claim 15 further comprising the step of modifying said one or more resource saturation

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<sup>20</sup> Specification page 15, lines 20 – 21, page 21, lines 20 – 23, and Figure 10.

<sup>21</sup> Specification page 7, lines 9 – 15, page 3, line 30 – page 4, line 1.

<sup>22</sup> Specification page 7, lines 24 – 31.

<sup>23</sup> Specification page 6, lines 12 – 25.

<sup>24</sup> Specification page 7, lines 24 – 31.

<sup>25</sup> Specification page 17, lines 7 – 22.

<sup>26</sup> Specification page 10, lines 11 – 15.

<sup>27</sup> Specification page 17, lines 7 – 22, and page 3, line 28 – page 4, line 6.

<sup>28</sup> Specification page 3, line 28 – page 4, line 6.

levels.<sup>29</sup>

Claim 17 is directed to the method of performing immunoassays as recited in claim 16 further comprising the step of using historical information of tests performed previously in said immunoassay analyzer in said modifying step.<sup>30</sup>

Claim 18 is directed to the method of performing immunoassays as recited in claim 13 wherein said determining and moving step are performed so as to reduce a total time period to perform each of the tests of each of said plurality of test vessels relative to a time period required for performing each test sequentially.<sup>31</sup>

Claim 19 is directed to the method of performing immunoassays as recited in claim 13 further comprising the step of resolving one or more conflicts in resource allocation by selecting a group of next tests and shifting said group of next tests at least one test cycle until said one or more conflicts is resolved.<sup>32</sup>

Claim 20 is directed to the method of performing immunoassays as recited in claim 13 further comprising the step of managing allocation of said one or more resources to balance a workload across a set of duplicate resources of said one or more resources.<sup>33</sup>

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

At issue in this appeal is whether:

- I. claims 1 – 12 are indefinite under 35 U.S.C §112, second paragraph;
- II. claims 2 and 14 are indefinite under 35 U.S.C §112, second paragraph;
- III. claims 13 – 20 are indefinite under 35 U.S.C §112, second paragraph; and
- IV. claims 1 – 20 are unpatentable under 35 U.S.C §102(b) as being anticipated by U.S. Patent No. 5,972,295 to Hanawa et al. (hereinafter, “Hanawa”).

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<sup>29</sup> Specification page 4, lines 4 – 6.

<sup>30</sup> Specification page 4, lines 4 – 6.

<sup>31</sup> Specification page 5, lines 10 – 29.

<sup>32</sup> Specification page 20, line 18 – page 21, line 3.

<sup>33</sup> Specification page 18, lines 11 – 15.

ARGUMENT:Regarding Rejection I:

Appellants respectfully submit that the rejection of claims 1 – 12 under 35 U.S.C §112, second paragraph is improper and should be reversed. The final rejection alleges that “the specification does not provide support for the ‘means for’ language used in the claims.”<sup>34</sup> Second, the final rejection alleges that “the ‘means for’ is not modified by sufficient structure for achieving the specified function.”<sup>35</sup>

The rejected claims recite the following “means for” clauses:

1. means for loading one or more samples into one or more test vessels;
2. means for identifying tests to be performed on each of said one or more samples;
3. means for moving a plurality of test vessels to and from one or more resources of said plurality of resources;
4. means for setting one or more resource station levels; and
5. means for modifying said one or more resource saturation levels.

Appellants respectfully submit that, contrary to the apparent assertions in the Advisory action dated July 11, 2008, there is no statutory or regulatory requirement that the phrase “means for” appear in the written description. Rather, the test for determining whether a claim, employing “means plus function” terminology meets the definiteness requirement is whether

“the corresponding structure (or material or acts) of a means (or step)-plus-function limitation [is] disclosed in the specification itself in a way that one skilled in the art will understand what structure (or material or acts) will perform the recited function.”<sup>36</sup>

The rejected claims meet this standard. First, one skilled in the art would understand what structure (or material or acts) will perform the recited “means for

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<sup>34</sup> Page 2, line 22 – page 3, line 1 of the Office action mailed April 16, 2008.

<sup>35</sup> Page 3, lines 6 – 7 of the Office action mailed April 16, 2008.

<sup>36</sup> MPEP §2181, citing *Atmel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374, 1381, 53 USPQ2d 1225, 1230 (Fed. Cir. 1999).

loading one or more samples into one or more test vessels” from the specification as filed. The specification explains, “[s]amples are loaded into the immunoassay analyzer either from the sample rack or by an operator ....”<sup>37</sup> Figure 10 illustrates a “means for loading one or more samples into one or more test vessels”:

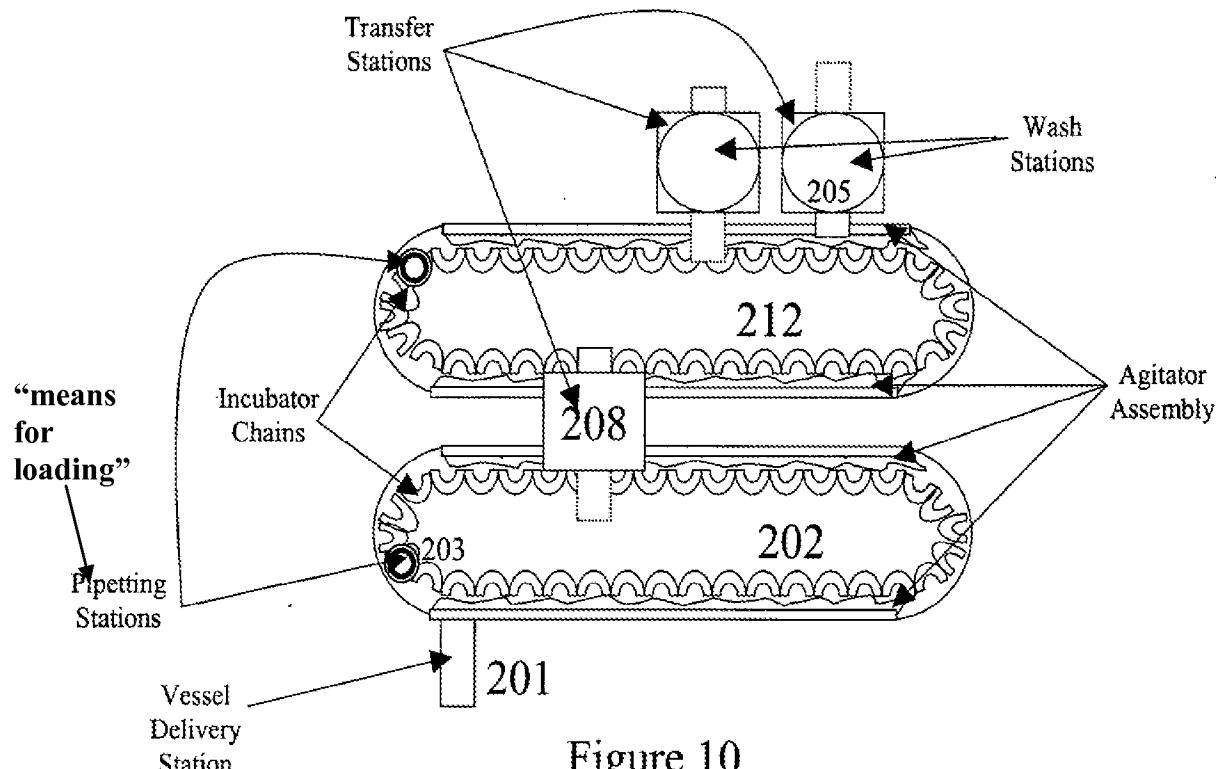


Figure 10

Making reference to Figure 10, the specification explains, “[t]he test vessel is moved to a pipetting station 203 where liquid is added. The liquid that is added may include biological sample (e.g., blood, plasma, urine, etc.), or diluted biological sample, or liquid reagent.”<sup>38</sup> The pipetting stations are means for loading one or more samples into one or more test vessels.

Second, one skilled in the art would understand what structure (or material or acts) will perform the recited “means for identifying tests to be performed on each of said one or more samples.” The specification explains, “[t]he selection of bead and reagent for each sample is managed by the controller subsystem 101 based on the type of test to

<sup>37</sup> Page 15, lines 20 – 21 of the specification.

<sup>38</sup> Page 21, lines 20 – 23 of the specification.

be performed on each sample. These subsystems include identification capabilities such as bar code readers or RF tag readers that read the identification information on the reagent containers, bead containers and test vessels to ensure that correct components are added to each test vessel for testing.”<sup>39</sup> The specification also states, “[a] bar code reader, RF tag, or other means for identifying the samples can be used to associate the desired tests with the specific samples to be tested.”<sup>40</sup>

Third, one skilled in the art would understand what structure (or material or acts) will perform the recited “means for moving a plurality of test vessels to and from one or more resources of said plurality of resources.” The specification explains, “[t]he pathways for moving from one step to another are represented by arrows, and will typically coincide with physical movement of a sample tube from one section of the instrument to another (e.g. from a pipetting station to a transfer or wash station) by means of a transport device such as an incubator belt.”<sup>41</sup>

Fourth, one skilled in the art would understand what structure (or material or acts) will perform the recited “means for setting one or more resource station levels.” The specification explains, “[t]he test data, such as test types, test paths, resource utilization and other related information is entered into the controller via the user interface 24 using anyone of several input devices such as bar code reader, keyboard, mouse, etc.”<sup>42</sup> Page 18, line 16 – page 19, line 16 of the specification provides even more detail.

Fifth, one skilled in the art would understand what structure (or material or acts) will perform the recited “means for modifying said one or more resource saturation levels.” The specification provides ample explanation on page 7, lines 28 – 31 and page 18, line 16 – page 19, line 16. In view of the foregoing, it is respectfully submitted that this ground of rejection should be reversed, as support for each any every “means-plus-function” claim limitation is found in the specification, as demonstrated above.

Regarding Rejection II:

Appellants respectfully submit that the rejection of claims 2 and 14 under 35

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<sup>39</sup> Page 7, lines 9 – 15 of the specification.

<sup>40</sup> Page 3, line 30 – page 4, line 1 of the specification.

<sup>41</sup> Page 10, lines 11 – 15 of the specification.

<sup>42</sup> Page 7, lines 28 – 31 of the specification.

U.S.C §112, second paragraph should be reversed. Claim 2 requires the controller to determine an optimized launch of test sequence for each sample based on any samples currently under test and any samples yet to be tested, said launch of test sequence controlling a time and order for tests to be launched.

The final rejection alleges that “[i]t is unclear what constitutes an ‘optimized’ launch of test sequence.”<sup>43</sup> The final rejection also alleges, “the phrase ‘a launch of test sequence’ is unclear.”<sup>44</sup> The Advisory Action alleges that the phrase “a launch of test sequence” is “grammatically (*sic*) incorrect, thus adding to the lack of clarity of the claims.”

Appellants respectfully submit that a person of ordinary skill in the art would understand that the phrase “a launch of test sequence” refers to a particular type of sequence, *i.e.*, a sequence identifying the order in which tests are launched. Again, it is axiomatic that claims must be interpreted not in a vacuum, but in light of the specification. The specification explains, “[t]he dynamic controller will calculate test sequences for each of the samples based on resource and timing requirements and will launch the tests in an optimized sequence. Furthermore, the dynamic controller of the present invention permits accessing the samples in a randomized fashion, as opposed to a serial, one after the other, fashion. This allows for a controller to manage the varying time periods between entering samples into the analyzer instrument for testing and processing the samples through the selected assays. In this way, the time durations for the various types of tests being performed can be optimized.”<sup>45</sup> Thus, one skilled in the art reading the claim in light of the specification would understand what would constitute an optimized launch of test sequence as claimed.

Second, the final rejection alleges that “it is unclear how the controller determines a launch of test sequence for a sample that is already under test, and how a time and order for tests to be launched is achieved with samples that are already under test.”<sup>46</sup> In response, the specification explains that a launch of test sequence is determined even for samples that are already under test. Typically, such a sample would remain at “the front

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<sup>43</sup> Page 3, lines 21 – 22 of the Office action mailed April 16, 2008.

<sup>44</sup> Page 4, line 8 of the Office action mailed April 16, 2008.

<sup>45</sup> Page 4, lines 1 – 13 of the specification.

<sup>46</sup> Page 4, lines 3 – 5 of the Office action mailed April 16, 2008.

of the line.” However, in some circumstances the controller may halt a test that is underway, and assign it an optimized launch of test sequence that places the sample at “the back of the line.” The specification explains that in preferred embodiments, “[i]n order to allow higher priority tests to be launched without halting samples currently under test, some resources must be available at all times to introduce the high priority tests into the instrument.”<sup>47</sup> In view of the foregoing, it is respectfully submitted that this ground of rejection should be reversed.

Regarding Rejection III:

Appellants respectfully submit that the rejection of claims 13 – 20 under 35 U.S.C §112, second paragraph also should be reversed. The final rejection alleges that “[i]t is unclear what is meant by, ‘moving each of said plurality of test vessels along its respective path determined in said using a computer controller to determine step.’” The penultimate step recited in claim 13 is “using a computer controller to determine a path for each test vessel.” The final step is “moving each of said plurality of test vessels along its respective path determined in said using a computer controller to determine step.” One skilled in the art would have no difficulty understanding what is meant by the claim language when construing the same in light of the specification, which is all that is required under the law.

Appellants note that “[t]he examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available.”<sup>48</sup> Moreover, “[s]ome latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to appellants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.”<sup>49</sup>

Here, the Examiner has not demonstrated how the claim language is allegedly

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<sup>47</sup> Page 18, lines 25 – 28 of the specification.

<sup>48</sup> MPEP §2173.02.

<sup>49</sup> MPEP §2173.02.

indefinite, such as by explaining why it is considered inaccurate in view of the specification or explaining what alternative and different reasonable interpretations of the language may exist. Instead, the final rejection merely asserts, without explanation, that the claim language is “unclear” and “confusing.” In view of the foregoing, it is respectfully submitted that this ground of rejection should be reversed.

Regarding Rejection IV:

Appellants respectfully submit that the rejection of claims 1 – 20 under 35 U.S.C §102(b) over Hanawa should be reversed. Anticipation only can be established by a single prior art reference which discloses each and every element of the claimed invention.<sup>50</sup> “The identical invention must be shown in as complete detail as is contained in the patent claim.”<sup>51</sup>

Hanawa does not show the identical invention in as complete detail as is contained in independent claim 1. Thus, Appellants respectfully submit that Hanawa does not anticipate independent claim 1 or dependent claims 2 – 12, which depend from claim 1. Similarly, Hanawa does not show the identical invention in as complete detail as is contained in independent claim 13. Thus, Appellants respectfully submit that Hanawa does not anticipate independent claim 1 or dependent claims 14 – 20, which depend from claim 13.

First, Hanawa does not show a means for identifying tests to be performed on each of one or more samples. Instead, the reference shows “a bar-code reader **5** as an identifying apparatus for identifying a destination of [a] sample rack....”<sup>52</sup> This bar-code reader merely determines “whether the sample rack carried is a sample rack which needs not to be reexamined or a general sample rack which may need to be reexamined.”<sup>53</sup> Thus, Hanawa makes a determination regarding a sample rack carrying multiple samples and does not identify tests to be performed on each of the one or more samples in the rack. Moreover, Hanawa merely determines whether its single test may need to be re-performed. The bar-code reader does not identify tests to be performed. As stated

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<sup>50</sup> See, *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984).

<sup>51</sup> *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

<sup>52</sup> Column 4, lines 45 – 46 of US 5,972,295.

<sup>53</sup> Column 3, lines 18 – 22 of US 5,972,295.

succinctly in the claims of this reference, Hanawa merely provides a single “analyzing unit for testing an analysis item of a sample sampled from a sample container contained in the sample rack ....”<sup>54</sup> Thus, Hanawa cannot anticipate the claimed invention under 35 U.S.C. § 102.

Second, Hanawa does not show that each of the tests is to be performed in a test vessel. Hanawa removes the sample from the sample container for testing (see Column 5, lines 29 – 41 of US 5,972,295). The final rejection states, “the test vessels are not positively recited elements in the claims, and thereby the recitation to the tests being performed in a test vessel is a recitation that is drawn to an intended use that is not afforded patentable weight.”<sup>55</sup> In response, it is pointed that the “claims must be considered as a whole,”<sup>56</sup> and claim language cannot be simply ignored when determining patentability. MPEP §2106 explains, “when evaluating the scope of a claim, every limitation in the claim must be considered. USPTO personnel may not dissect a claimed invention into discrete elements and then evaluate the elements in isolation. Instead, the claim as a whole must be considered.”

Here, each element of the immunoassay analyzers of claims 1 – 12, and each step of the automated methods of claims 13 – 20 operates in conjunction with one or more test vessels. The invention as a whole clearly requires each test to be performed in a test vessel. It is improper to dissect this requirement out of the claims.

Third, Hanawa does not show a computer controller that tracks the location of each test vessel. Hanawa does not utilize test vessels. Hanawa uses sample containers, from which the sample is removed for testing. Clearly, Hanawa does not show a computer controller, which tracks the location of test vessels, since no test vessels are employed. The final rejection asserts, “Hanawa discloses a computer controller and thereby such controller is capable of such functionalities.”<sup>57</sup> Appellants respectfully reassert that in order to support an anticipation rejection, “[t]he identical invention must be shown in as complete detail as is contained in the patent claim.”<sup>58</sup> Hanawa does not show a computer controller, which tracks the location of test vessels. Thus, Hanawa does

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<sup>54</sup> Column 12, lines 21 – 23 of US 5,972,295.

<sup>55</sup> Page 7, line 21 – page 8, line 2 of the Office action mailed April 16, 2008.

<sup>56</sup> *Diamond v. Diehr*, 450 U.S. 175, 188-89, 209 USPQ 1, 9 (1981).

<sup>57</sup> Page 8, lines 11 – 12 of the Office action mailed April 16, 2008.

<sup>58</sup> *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

not anticipate the claimed invention. Additionally, it is worth noting that Hanawa does not even track the location of the sample racks from which samples are removed for testing. Instead, the sample racks are processed in a first-in-first-out manner. Hanawa is unconcerned with the location of each sample within the analyzing apparatus, and merely determines at the fixed location of the bar-code reader whether a given sample needs to be reexamined.

Finally, Hanawa does not show a computer controller that determines a path for each test vessel between each resource based on the test identified for said test vessel by said means for identifying and the tests identified and location for all other test vessels of said plurality of test vessels. Hanawa does not show test vessels, and does not identify a test for each test vessel, thus the reference does not determine a path for each test vessel between each resource and does not determine a path based on the test identified for each vessel, and the locations of all vessels. Instead, Hanawa merely determines whether each sample rack should be directed to the rack collecting unit **23** or the standby unit **40** based on whether the rack is likely to need to be reexamined. In view of the foregoing, it is respectfully submitted that this ground of rejection should be reversed.

Claim 2 further distinguishes over Hanawa by requiring the controller to determine an optimized launch of test sequence for each sample based on any samples currently under test and any samples yet to be tested, said launch of test sequence controlling a time and order for tests to be launched. Similarly, claim 14 is directed to the method of performing immunoassays as recited in claim 13 further comprising the step of using a computer controller to determine a launch of test sequence for each test based on samples under tests and samples to be tested, said launch test sequence controlling a time and order of tests to be launched. Hanawa does not show the identical invention in as complete detail as is contained in claims 2 and/or 14, and therefore does not anticipate claims 2 and/or 14.

Claim 3 further distinguishes over Hanawa by requiring the immunoassay analyzer of claim 2 to further comprise a means for setting one or more resource saturation levels, and wherein said computer controller considers said one or more resource saturation levels in the determination of said launch of test sequence. Similarly, claim 15 is directed to the method of performing immunoassays as recited in claim 13

further comprising the step of determining one or more resource saturation levels for said launch of test sequence. Hanawa does not show the identical invention in as complete detail as is contained in claims 3 and/or 15, and therefore does not anticipate claims 3 and/or 15.

Claim 4 further distinguishes over Hanawa by requiring the immunoassay analyzer of claim 3 to further comprises means for modifying said one or more resource saturation levels. Similarly, claim 16 is directed to the method of performing immunoassays as recited in claim 15 further comprising the step of modifying said one or more resource saturation levels. Hanawa does not show the identical invention in as complete detail as is contained in claims 4 and/or 16, and therefore does not anticipate claims 4 and/or 16.

Claim 5 is directed to the immunoassay analyzer of claim 4, and further distinguishes over Hanawa by requiring the means for modifying said one or more resource saturation levels to use historical information of tests performed previously in the immunoassay analyzer. Claim 17 is directed to the method of performing immunoassays as recited in claim 16 further comprising the step of using historical information of tests performed previously in said immunoassay analyzer in said modifying step. Hanawa does not show the identical invention in as complete detail as is contained in claims 5 and/or 17, and therefore does not anticipate claims 5 and/or 17.

Claim 6 is directed to the immunoassay analyzer of claim 1, and further distinguishes over Hanawa by requiring the path determined by said computer controller to be determined each time a new test is to be performed on said one or more samples. Hanawa does not show the identical invention in as complete detail as is contained in claim 6, and therefore does not anticipate claim 6.

Claim 7 is directed to the immunoassay analyzer of claim 1, and further distinguishes over Hanawa by requiring the path determined by said computer controller to consider tests in one or more test vessels which are to be given priority over tests identified for all other test vessels. Hanawa does not show the identical invention in as complete detail as is contained in claim 7, and therefore does not anticipate claim 7.

Claim 8 is directed to the immunoassay analyzer of claim 3, and further distinguishes over Hanawa by requiring the path determined by said computer controller

to be determined each time a new test is to be performed on said one or more samples. Hanawa does not show the identical invention in as complete detail as is contained in claim 8, and therefore does not anticipate claim 8.

Claim 9 is directed to the immunoassay analyzer of claim 1, and further distinguishes over Hanawa by requiring the path determined by said computer controller to reduce a total time period to perform each of the tests of each of said plurality of test vessels relative to a time period required for performing each test sequentially. Similarly, claim 18 is directed to the method of performing immunoassays as recited in claim 13 wherein said determining and moving step are performed so as to reduce a total time period to perform each of the tests of each of said plurality of test vessels relative to a time period required for performing each test sequentially. Hanawa does not show the identical invention in as complete detail as is contained in claims 9 and/or 18, and therefore does not anticipate claims 9 and/or 18.

Claim 10 is directed to the immunoassay analyzer of claim 1, and further distinguishes over Hanawa by requiring the computer controller to resolve one or more conflicts in resource allocation by selecting a group of next tests and shifting said group of next tests at least one test cycle until said one or more conflicts is resolved. Claim 19 is directed to the method of performing immunoassays as recited in claim 13 further comprising the step of resolving one or more conflicts in resource allocation by selecting a group of next tests and shifting said group of next tests at least one test cycle until said one or more conflicts is resolved. Hanawa does not show the identical invention in as complete detail as is contained in claims 10 and/or 19, and therefore does not anticipate claims 10 and/or 19.

Claim 11 is directed to the immunoassay analyzer of claim 1, and further distinguishes over Hanawa by requiring the computer controller to manage allocation of said one or more resources to balance a workload across a set of duplicate resources of said one or more resources. Similarly, claim 20 is directed to the method of performing immunoassays as recited in claim 13 further comprising the step of managing allocation of said one or more resources to balance a workload across a set of duplicate resources of said one or more resources. Hanawa does not show the identical invention in as complete detail as is contained in claims 11 and/or 20, and therefore does not anticipate claims 11

and/or 20.

Claim 12 is directed to the immunoassay analyzer of claim 11, and further distinguishes over Hanawa by requiring the set of duplicate resources to include duplicate wash stations. Hanawa does not show the identical invention in as complete detail as is contained in claim 12, and therefore does not anticipate claim 12.

Conclusion

In view of the foregoing, Appellants respectfully submit that all pending claims are patentable over the prior art of record and comply with all other requirements of law. The Honorable Board is requested to reverse all outstanding grounds of rejection and to direct the passage of this application to allowance.

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CLAIMS APPENDIX:

1. (previously presented) An immunoassay analyzer, comprising:
  - means for loading one or more samples into one or more test vessels;
  - means for identifying tests to be performed on each of said one or more samples, each of said tests to be performed in a test vessel;
  - a plurality of resources, each of said plurality of resources for performing a specified function on a test vessel, each of said tests identified by said means for identifying requiring one or more of said plurality of resources;
  - means for moving a plurality of test vessels to and from one or more resources of said plurality of resources; and
  - a computer controller which
    - (i) tracks a location of each test vessel;
    - (ii) controls movement of said test vessels by said means for moving, and
    - (iii) determines a path for each test vessel between each resource based on the test identified for said test vessel by said means for identifying, and the tests identified and location for all other test vessels of said plurality of test vessels, and each path requiring one or more of said plurality of resources and movement between said plurality of resources by said means for moving.
2. (previously presented) The immunoassay analyzer of claim 1 wherein said controller determines an optimized launch of test sequence for each sample based on any samples currently under test and any samples yet to be tested, said launch of test sequence controlling a time and order for tests to be launched.
3. (previously presented) The immunoassay analyzer of claim 2 further comprising a means for setting one or more resource saturation levels, and wherein said computer controller considers said one or more resource saturation levels in the determination of said launch of test sequence.
4. (previously presented) The immunoassay analyzer of claim 3 further comprising

- means for modifying said one or more resource saturation levels.
5. (previously presented) The immunoassay analyzer of claim 4 wherein said means for modifying said one or more resource saturation levels uses historical information of tests performed previously in the immunoassay analyzer.
  6. (previously presented) The immunoassay analyzer of claim 1 wherein said path determined by said computer controller is determined each time a new test is to be performed on said one or more samples.
  7. (previously presented) The immunoassay analyzer of claim 1 wherein said path determined by said computer controller considers tests in one or more test vessels which are to be given priority over tests identified for all other test vessels.
  8. (previously presented) The immunoassay analyzer of claim 3 wherein said path determined by said computer controller is determined each time a new test is to be performed on said one or more samples.
  9. (previously presented) The immunoassay analyzer of claim 1 wherein said path determined by said computer controller reduces a total time period to perform each of the tests of each of said plurality of test vessels relative to a time period required for performing each test sequentially.
  10. (previously presented) The immunoassay analyzer of claim 1 wherein said computer controller resolves one or more conflicts in resource allocation by selecting a group of next tests and shifting said group of next tests at least one test cycle until said one or more conflicts is resolved.
  11. (previously presented) The immunoassay analyzer of claim 1 wherein said computer controller manages allocation of said one or more resources to balance a workload across a set of duplicate resources of said one or more resources.

12. (previously presented) The immunoassay analyzer of claim 11 wherein said set of duplicate resources includes duplicate wash stations.
13. (previously presented) An automated method for performing immunoassays in an automated immunoassay analyzer, comprising the steps of:
  - loading one or more samples;
  - identifying tests to be performed on each of said one or more samples, each of said tests to be performed in a test vessel;
  - using a computer controller to control movement of a plurality of test vessels to and from one or more resources of a plurality of resources, each of said plurality of resources for performing a specified function on a test vessel, each of said tests identified by said means for identifying requiring one or more of said plurality of resources;
  - using a computer controller to track a location of each test vessel;
  - using a computer controller to determine a path for each test vessel between each resource based on the test identified for said test vessel by said means for identifying, said location of each test vessel, and the tests identified for all other test vessels of said plurality of test vessels, and each path requiring one more of said plurality of resources and movement between said plurality of resources; and
  - moving each of said plurality of test vessels along its respective path determined in said using a computer controller to determine step.
14. (previously presented) The method of performing immunoassays as recited in claim 13 further comprising the step of using a computer controller to determine a launch of test sequence for each test based on samples under tests and samples to be tested, said launch test sequence controlling a time and order of tests to be launched.
15. (previously presented) The method of performing immunoassays as recited in

- claim 13 further comprising the step of determining one or more resource saturation levels for said launch of test sequence.
16. (previously presented) The method of performing immunoassays as recited in claim 15 further comprising the step of modifying said one or more resource saturation levels.
  17. (previously presented) The method of performing immunoassays as recited in claim 16 further comprising the step of using historical information of tests performed previously in said immunoassay analyzer in said modifying step.
  18. (previously presented) The method of performing immunoassays as recited in claim 13 wherein said determining and moving step are performed so as to reduce a total time period to perform each of the tests of each of said plurality of test vessels relative to a time period required for performing each test sequentially.
  19. (previously presented) The method of performing immunoassays as recited in claim 13 further comprising the step of resolving one or more conflicts in resource allocation by selecting a group of next tests and shifting said group of next tests at least one test cycle until said one or more conflicts is resolved.
  20. (previously presented) The method of performing immunoassays as recited in claim 13 further comprising the step of managing allocation of said one or more resources to balance a workload across a set of duplicate resources of said one or more resources.

EVIDENCE APPENDIX:

None.

RELATED PROCEEDINGS APPENDIX:

None.